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THE ROLE OF TRUST IN ELECTRONIC MARKET ACCESS FORUM (EMAF) MEDIATED EXCHANGES: A CONTINGENCY BASED VIEW

RESEARCH-IN-PROGRESS

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ABSTRACT

Research on interorganizational partnerships (IOPs) points to high levels of information-sharing, mediated by interorganizational systems (IOS), as a determinant of value creation. However, it is widely acknowledged that such interactions are characterized by opportunism, leading to transaction costs. Interfirm trust has been posited as one mechanism for reducing transaction costs and promoting rich information sharing. In this research-in-progress, we seek to understand the role of trust in facilitating information sharing in one form of IOS—electronic market access forums (EMAFs). We draw on transaction cost economics (TCE) to suggest that the dominant trust-based mechanism in an EMAF exchange is contingent upon the nature of information exchanged. This study will enhance understanding of how different types of trust influence information sharing in IOPs, and, potentially, offer guidelines on how EMAF providers can improve their margins by fostering different forms of trust-based governance.

Keywords

Interorganizational partnerships (IOPs), information sharing, trust, electronic market access forums (EMAFs)

INTRODUCTION

Recent research suggests that despite the efforts of buyers and suppliers to promote interorganizational information exchange, such “interactions are plagued by opportunism and appropriability problems” (Arikan 2009, p.672). Consistent with theories of relational governance, these authors suggest that “solutions to these problems lie in the development of trust and norms of cooperation....” (p. 672). Relational governance literature proposes interorganizational trust as an alternative governance mechanism that reduces transaction costs and improves relationship performance, while facilitating information exchange (Dyer and Chu 2003; Ireland 2007; Zaheer 1995).

Reduced transaction costs and richer information exchange are promised by Internet-based interorganizational information systems (IOS) in the form of electronic market access forums (EMAFs) (Commins and Trigg 2000). As enablers of knowledge creation, EMAFs can generate greater profits through consulting and more advanced use of online tools - but, a decade after the initiation of these types of enterprises, there is little evidence that buyers and suppliers perceive EMAFs as a venue for strategic information exchange (Grieger 2003). Moreover, some authors suggest that confidentiality and information security concerns may inhibit richer use of an EMAF, particularly since technologies exist to integrate interorganizational processes without the need for an intermediary (Power 2007). *This implies that trust mechanisms that encourage transactional information exchange may differ from trust mechanisms that facilitate strategic information exchange.* Given that trust has been shown to be critical in situations where undesirable outcomes are possible (Luhmann 1979; Williamson 1985), we seek to understand the role of trust-based governance mechanisms in facilitating different classes of information exchange in EMAF environments.

THEORETICAL DEVELOPMENT

Transaction cost economics (TCE)

TCE provides a theoretical frame for examining interorganizational information flows. TCE proposes that “any transactional exchange between two parties (e.g. buyers and suppliers) is characterized by opportunism, where one party can take advantage of the other. The level of opportunism depends on the nature of the exchange environment...” (Grover et al. 2002, p. 218). Concomitant with notions of opportunism is the assumption that organizations are boundedly rational—i.e. “limited

in their ability to receive, store, retrieve, and communicate information without error”—making it difficult to specify all contingencies surrounding an exchange (Grover et al. 2003, p. 459). Together, opportunism and bounded rationality give rise to transaction costs (Grover et al. 2003; Grover et al. 2002). Transaction costs are higher in the face of high uncertainty and high asset specificity (Grover et al. 2003). Under these conditions, organizations are motivated to seek appropriate governance mechanisms that will reduce transaction costs (Williamson 1975).

In the context of interorganizational partnerships (IOPs), an organization's objectives for entering into an exchange relationship may be incongruent with the objectives of potential exchange partners (Bowen and Jones 1986). This gives rise to partnership uncertainty (Bensaou and Venkatraman 1995) and uncertainty in the transactional environment (henceforth called *environment uncertainty*) (Grover et al. 2002), particularly when parties involved have unequal access to information surrounding an exchange (Bowen and Jones 1986; Choudhury et al. 1997). The higher the perceived level of uncertainty surrounding the IOP environment and/or potential exchange partners, the higher the transaction costs, in terms of risk, associated with sharing information.

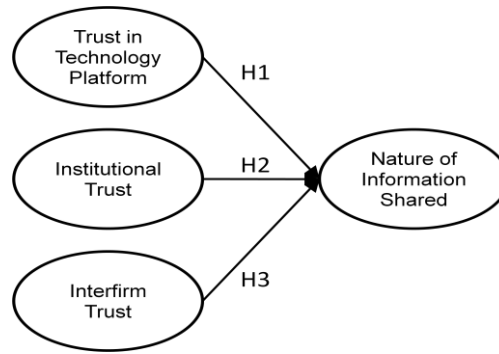
Asset specificity, in the form of information specificity, refers to the extent to which the value of information exchanged is restricted to its use by specific organizations (knowledge specificity) or within a specific time period (time specificity) (Choudhury et al. 1997). Perceptions of information specificity are conditional upon characteristics of the information to be shared—i.e. range, quality, privilege, and its degree of coordination-relatedness (Malhotra et al. 2005). For example, knowledge specificity is expected to be salient when information is high quality, broad, and extensively privileged, while time specificity is expected to be relevant with respect to information that is coordination related.

Relational Governance

Theories of relational governance build on TCE and add trust as an important dimension of buyer-seller relationships (e.g. Klein and Rai 2009). For example, *interfirm trust* has been posited to lower transaction costs and lead to value-creating behaviors (Dyer and Chu 2003). Notions of uncertainty and information specificity in IOP information sharing suggest that different levels or forms of trust may influence different types of information sharing. This leads to the following research question: *to what extent do different forms of trust influence information sharing in IOS-enabled IOPs?*

Trust in technology, as distinct from trust between IOPs, may also be germane to the study of IT-based information flows between buyers and suppliers (these are institutional trust and technology trust). Trust in technology is made up of two distinct constructs (McKnight et al., 2009): (1) *institutional trust* refers to collectively held beliefs that outcomes will be successful due to the presence of supportive situations and structures (McKnight et al., 1998). In the context of IOPs, these include beliefs that information flows are underpinned by appropriate structural safeguards such as contracts, guarantees, and regulations (McKnight et al. 1998); and (2) *trust in a specific technology platform*—note: while less established than institution-based trust, recent studies suggest that people do form trusting beliefs about specific technology attributes—i.e. consistency, functionality, and helpfulness—that influence technology use, independent of trusting beliefs relating to individuals or organizations (Lippert 2007; McKnight et al. 2009). The context of IOPs provides an opportunity to empirically test this claim.

The proposed research model (Figure 1), builds on aspects of Klein and Rai's (2009) study of strategic information flows between buyers and suppliers in logistics supply chain relationships. These authors found that trusting beliefs about the benevolence, integrity, and ability of a receiving partner, positively influenced information sharing with partners. The model also builds on Malhotra et al.'s (2005) work to propose that the nature of an organization's trust in its partner will influence the nature of information shared between partners. To empirically test this proposition, we utilize 3 classes of information that may be shared among supply chain partners: 1) order; 2) operational; and 3) strategic. We propose that the nature of information shared will be contingent on different forms of trust and will manifest in perceptions of *willingness to share*. Table 1 provides definitions for these and other constructs used in this study. In the next section, we develop hypotheses based on our research question. Then, we propose an appropriate methodology for testing the research model.

**Figure 1: Research Model**

Construct	Defined as	Comprising	Defined as
Nature of information shared (Seidmann and Sundararajan 1997)	The class of private information shared between supply chain partners	Order	Transactional exchange information
		Operational	Production-related information about resource conditions and plans
		Strategic	Financial and marketing related information
Institutional Trust (McKnight et al. 1998)	Beliefs that outcomes will be successful due to the presence of supportive situations and structures	Structural Assurances	Beliefs that transactions are underpinned by appropriate structural safeguards such as contracts, guarantees, and regulations
Trust in a specific technology platform (based on McKnight et al. 2009)	“a willingness to depend on a specific technology in a given situation in which negative consequences are possible” (McKnight et al. 2009, p. 6)	Trusting beliefs	Beliefs that the technology platform has the features to complete a required information sharing transaction (functionality); will operate consistently (consistency); and has an adequate and responsive IT support function (helpfulness)
Interfirm trust (based on Dyer and Chu 2003; Lippert 2007)	“one party’s confidence that the other party in the exchange relationship will not exploit its vulnerabilities” (Dyer and Chu 2003, p. 58)	Reliability	The partner organization will “reliably make good faith efforts to behave in accordance with prior commitments” (p. 58)
		Fairness	The partner organization “makes adjustments in ways perceived as “fair”” (p. 58)
		Goodwill	The partner organization “does not take excessive advantage of an exchange partner even when the opportunity is available” (p. 58)

Table 1: Construct Definitions**HYPOTHESES**

The nature of information shared in IT-enabled IOPs gives rise to uncertainty and information specificity. Order information, while private, refers to information contained in routine transactions, such as order quantities and prices (Seidmann and Sundararajan 1997). The primary focus of this type of information sharing is on reducing order cycle times. Consequently, uncertainty faced in this type of exchange relates to attributes of the technology platform, rather than to attributes the exchange partner: for example, whether the technology platform has the necessary attributes for storing and processing order information in a timely manner. Formally stated:

H1. Organizations that exhibit a high willingness to share order information will exhibit a high level of technology trust, while those that exhibit low willingness will not.

Operational information sharing is focused on exploiting expertise across organizational boundaries (Seidmann and Sundararajan 1997). Information shared is moderate in breadth, moderately privileged and moderately coordination-related (e.g. inventory level information). In addition to technology concerns, organizations engaged in these types of relationships must mitigate against the risk of placing interorganizational processes, such as managing inventory, outside of organizational boundaries. For this reason, we propose that organizations that exhibit a high willingness to share operational information, will exhibit a high level of institutional trust, while those that exhibit low willingness will not.

H2. Organizations that exhibit a high willingness to share operational information, will exhibit a high level of institutional trust, while those that exhibit low willingness will not.

In strategic information sharing, information relating to future plans and needs is exchanged, transmitted, and jointly developed by both the buyer and supplier (Grieger 2003). Knowledge specificity is extremely high because information exchanged is broad in range, extensively privileged, and of high quality (Malhotra et al. 2005). Knowledge specificity gives rise to partnership uncertainty over and above features of the technology and institutional structures. Consequently, we expect that a high level of interfirm trust to be a prerequisite for this type of information sharing. Formally stated:

H3. Organizations that exhibit a high willingness to share strategic information, will exhibit a high level of interfirm trust, while those that exhibit low willingness will not.

METHOD

Due to practical difficulties in data collection, the majority of prior research is based on data collected from only one party in the IOP (e.g. Malhotra et al. 2005). A notable exception in the IS literature is Klein and Rai's (2009) study that utilizes dyadic data. Klein and Rai's study provides an exemplar on implementing dyadic research designs. Klein and Rai adopted a "focal supplier" collection strategy. For this study we propose collecting data from clients (both buyers and suppliers) who participate in electronic market access forums (EMAFs) that provide a full-range of services covering the classes of information sharing identified here. Example EMAFs include Ariba, Perfect Commerce, etc.

Because the proposed constructs are perceptual in nature, a survey with valid psychometric properties is expected to be a suitable data collection method (Malhotra and Grover 1998). Measures for theoretical constructs and controls will be adapted from existing scales, wherever possible. This means conducting a literature search to generate sample items. The population of interest is clients (both buyers and suppliers) who participate in an EMAF. Because of the cross-sectional nature of our data collection, we will not demonstrate causality definitively. The construction of a sample frame from the relevant population as well as probabilistic sampling methods will support the external validity of our study (Berkowitz 1982). Every attempt will be made to collect dyadic data. However, because information sharing between buyers and suppliers in these environments is mediated by the EMAF vendor, the sample should be evaluated for differences between buyers and suppliers to determine if a dyadic model is appropriate or if, in a mediated environment, it is more appropriate to evaluate EMAF clients in general (Malhotra and Grover 1998).

Validation of the survey instrument prior to administration is critical both to ensure validity of conclusions as well as to develop and validate measures of the less well-defined constructs in our study (trust in technology, trust in a supply chain partner) (Straub et al. 2004). Prior to developing the instrument, we will conduct expert interviews with EMAF clients as well as EMAF representatives to tighten our operational definitions and to ensure constructs are appropriately translated from theory to measurement (Malhotra and Grover 1998). Item construction will be conducted to minimize bias and ambiguity, with additional purification and validation of items provided by pretesting (Podsakoff 2003). Measurement and structural models will be tested using a components-based approach, such as PLS. PLS is preferred because this is an exploratory, prediction-oriented, study and PLS maximizes the variance explained in endogenous variables (Teo et al., 2003; Klein and Rai, 2009). Moreover, it is difficult to achieve large sample sizes with dyadic data (Klein and Rai, 2009). PLS is particularly suitable for testing relationships with smaller samples. Instrument validity (convergent and discriminant) will be evaluated through confirmatory factor analysis (Churchill 1979; Kerlinger 2000). Model fit, alternative model testing, and model solutions will be used to verify the relationships between constructs to test our hypotheses, and to lend support for causal inferences (Malhotra and Grover, 1998). The procedure for controlling common method variance is not the same in PLS as in covariance-based SEM. This is because, in PLS, indicators are weighted and summed without partialing variance. In the absence of a formal method for controlling common method variance in PLS, we will conduct Harman's single factor test.

To limit the potential for statistical conclusion error we will target a sample size that provides sufficient power. A rule of thumb for sample size is 100 or 5 multiplied by the number of variables in the model. To maximize sample size potential respondents will be contacted on multiple occasions to improve response rates. Non-response bias will be assessed by comparing early and late responders (Dillman 2009; Malhotra and Grover 1998).

LIMITATIONS

One limitation of the proposed research model is that it does not include partner exchange objectives. Exchange objectives, as defined by Malhotra et al. (2005) span a continuum between purely efficiency-oriented to efficiency combined with knowledge creation (Malhotra et al. 2005). Because we anticipate that EMAFs will be motivated by higher profits to move their clients into higher knowledge creation services, partner exchange objectives may be a relevant construct to incorporate directly into future research models. In particular, future research can explore how these objectives impact the relationships between different trust mechanisms and the nature of information shared within the EMAF context. In addition, our conversations with EMAF providers, suggest that a large proportion of EMAF clients “convert” relationships—i.e. by moving existing buyer-supplier contracts into the EMAF systems to increase efficiency and to take advantage of other EMAF value-adding services. This leads us to the intriguing possibility of investigating how the nature of trust and information shared differs in relationships that originate within the EMAF environment as compared to those that transfer into the EMAF environment.

CONCLUSION

Assuming the proposed hypotheses are supported, this study will have implications for relational governance research and practitioners involved in designing and managing EMAF services. First, the development, validation and testing of measures of interfirm trust, as well as trust in technology, opens up possibilities for future research on buyer-supplier relationships in EMAF and other IOS-enabled contexts. Second, this study furthers understanding of the contingent role of trust in IOS adoption and use by revealing what elements of trust are necessary to make optimal use of information exchanged between organizations. Finally, if these hypotheses are supported, these findings may form the basis for potential design changes to existing EMAF environments that will encourage the exchange of richer, more privileged, information. Moving a portion of clients from a predominantly operational efficiency focus towards strategic information exchange could improve EMAF margins and attract new segments of clients.

REFERENCES

1. Arikan, A.T. (2009) Interfirm Knowledge Exchanges and the Knowledge Creation Capability of Clusters. *Academy of Management Review*, 34, 4, 658-676.
2. Bensaou, M., and Venkatraman, N. (1995) Configurations of Interorganizational Relationships: A Comparison Between U.S. and Japanese Automakers," *Management Science*, 41, 9, 1471-1492.
3. Berkowitz, L. D., E. (1982). External Validity is More Than Skin Deep. *American Psychologist*. 37, 3, 245-257.
4. Bowen, D.E., and Jones, G.R. (1986) Transaction cost analysis of service organization-customer exchange. *The Academy of Management Review*, 11, 2, 428-441.
5. Choudhury, V., and Sampler, J.L. (1997) Information specificity and environmental scanning: an economic perspective. *MIS Quarterly* 21, 1, 25-53.
6. Commins, P., and Trigg, M. (2000) Ariba vs. Commerce One. Retrieved from: <http://www.fool.com/duelingfools/2000/duelingfools00112202.htm>, November 21, 2009.
7. Churchill, G. A. (1979). A Paradigm for Developing Better Measures of Marketing Constructs. *Journal of Marketing Research*, 16, 64-73.
8. Dillman, D. A., Smyth, Jolene D., Christian, Leah Melani. (2009). *Internet, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. Hoboken, NJ: John Wiley & Sons, Inc.
9. Dyer, J.H., and Chu, W. (2003). The role of trustworthiness in reducing transaction costs and improving performance: Empirical evidence from the United States, Japan, and Korea. *Organization Science*, 14, 1, 57-68.
10. Grieger, M. (2003) Electronic Marketplaces: A Literature Review and a Call for Supply Chain Management Research. *European Journal of Operational Research*, 144, 280-294.
11. Grover, V., and Malhotra, M.K. (2003) Transaction cost framework in operations and supply chain management research: theory and measurement. *Journal of Operations Management*, 21, 4, 457-473.

12. Grover, V., Teng, J.T.C., and Fiedler, K.D. (2002) Investigating the role of information technology in building buyer-supplier relationships. *Journal of the Association for Information Systems*, 3, 217-245.
13. Ireland, R.D., Webb, Justin W. (2007) A Multi-Theoretic Perspective on Trust and Power in Strategic Supply Chains. *Journal of Operations Management*, 25, 482-297.
14. Kerlinger, F. N., Lee, Howard B. (2000). *Foundations of Behavioral Research* (4th ed.), Wadsworth: Thomson Learning.
15. Klein, R. and Rai, A. (2009) Interfirm Strategic Information Flows in Logistics Supply Chain Relationships," *MIS Quarterly*, 33, 4, 735-762.
16. Lippert, S. K. (2007). Investigating postadoption utilization: an examination into the role of interorganizational and technology trust. *IEEE Transactions on Engineering Management*, 54, 3, 468-483.
17. Luhmann, N. (1979) *Trust and power*. Chichester, England: John Wiley & Sons.
18. Malhotra, A., Gosain, S., & El Sawy, O. A. (2005). Absorptive Capacity Configurations In Supply Chains: Gearing for Partner-Enabled Market Knowledge Creation. *MIS Quarterly*, 29, 1, 145-187.
19. Malhotra, M. K., & Grover, V. (1998). An assessment of survey research in POM: from constructs to theory. *Journal of Operations Management*, 16, 4, 407-425.
20. McKnight, D.H., Cummings, L.L., and Chervany, N.L. (1998) Initial trust formation in new organizational relationships. *Academy of Management Review*, 23, 3, 473-490.
21. McKnight, D. H., Carter, M. S., & Clay, P. (2009). Trust in Technology: development of a set of constructs and measures. Paper presented at the *SIGADIT 2009*.
22. Podsakoff, P.M., MacKenzie, Scott B., Lee, Jeong-Yeon, Podsakoff, Nathan P. (2003) Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88, 5, 879-903.
23. Power, D., Singh, P. (2007) The E-Integration Dilemma: The Linkages Between Internet Technology Application, Trading Partner Relationships and Structural Change. *Journal of Operations Management*, 25, 1292-1310.
24. Seidmann, A., and Sundararajan, A. (1997) Building and Sustaining Interorganizational Information Sharing Relationships: The Competitive Impact of Interfacing Supply Chain Operations with Marketing Strategy. In J. Degross and K. Kumar, (Eds.), *Proceedings of the Eighteenth International Conference on Information Systems*, Atlanta, GA, 1997, 205-222.
25. Straub, D., Boudreau, M.-C., and Gefen, D. (2004) Validation Guidelines for IS Positivist Research. *Communications of AIS*, pp 380-427.
26. Williamson, O.E. (1975) *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: The Free Press.
27. Williamson, O.E. (1985) *The Economic Institutions of Capitalism*. New York: The Free Press.
28. Zaheer, A., and Venkatraman, N. (1995) Relational Governance as an Interorganizational Strategy: an Empirical Test of the Role of Trust in Economic Exchange. *Strategic Management Journal*, 16, 373-392.